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## ***Analysis and Simulation of VSAT Communication System's Performance With QAM Modulation For The Link Between the RRI's stations***

### **ABSTRACT**

*Nowadays, communication process using terrestrial technology, but using that technology needs very high investment and also needs a long time for development. So now, many developing of telecommunication networks change to satellite communications which believed as one of technology which can resolve that problem.*

*VSAT (Very Small Aperture Terminal), VSAT is terminal item which has the shape like a very big plate and looks out to the space. With this item, digital signal can be received and transmitted to the satellite. In this case, satellite as transit place for the digital signal before the digital signal is transmitted to the other place in the earth. VSAT technology has some advantage then the terrestrial technology. In the case of coverage, a GEO satellite can covers more than 40 % of the earth surface. Economically, the wide coverage area causes satellite communication is cheaper than if we must build the optical network or the other terrestrial technology for the same wide coverage area.*

*The simulation result in system which using QAM modulation that is 16-QAM and 64-QAM shows that to get the same parameter performance of RRI's system which has BER  $10^{-7}$  then  $E_b/N_0$ 's system which using QAM modulation must larger than  $E_b/N_0$  in this time, It is equal to 7,5 dB. While for the use of bandwidth from the result of simulation, communication system with QAM modulation can increase the bandwidth of transponder equal to 68% for 16-QAM and 45% for 64-QAM in comparison with the existing the communication system in this time of RRI's station .*